

Meeting #6 Summary

Surface Water Management – TMDLs and Lake Pepin

Water Comprehensive Plan Task Force

August 13, 2007 Friends of the Mississippi River
Meeting Notes by Andrew Jacobson

Members Present: George Johnson (chair), Marj Ebensteiner, Bob Fossum, Steve Johnson, Boa Lee, Yung Kang Lu, Hoka Miller, Gregory Page, Steve Schneider, and Rebecca Wooden.

Members Absent: Cliff Aichinger, Sarah Clark, Bruce Elder, Anne Hunt, Tom Petersen, Shirley Reider, Obi Sium, Ron Struss, Kou Vang, John Wells and Jie Zhao.

Staff Present: Andrew Jacobson, Larry Soderholm, Brain Tourtelotte and Anne Weber
Larry Zangs.

Guests Present: Lois Eberhart, Tim Larson, Judy Sventek, Mike Trojan.

1. **Welcome** by Yung Kang Lu. The meeting notes from last meeting were approved. She introduced the upcoming topic of Lake Pepin and the ongoing total maximum daily pollution load (TMDL) study.
2. **Lake Pepin TMDL** presentation by Tim Larson (Minnesota Pollution Control Agency). Larson works on metro issues and TMDL studies. Mike Trojan, a stormwater management expert, was also present from MPCA. Larson introduced some of the major issues, followed by a question and answer session.

As part of the Clean Water Act, states are required to submit a list of impaired waters to the U.S. Environmental Protection Agency every 2 years. A water is impaired if it fails to meet one or more basic, federal water quality standards. As a result of an impairment the state must evaluate the pollutant sources and make reasonable progress towards addressing the impairment. A TMDL study is undertaken for each of the impairments determining the amount of pollutant reduction needed to restore water quality.

Lake Pepin is a natural lake along the Mississippi River near Lake City, Minnesota. Lake Pepin is on the 2004 Impaired Waters List for eutrophication and turbidity. These impairments are distinct, but inter-related issues and so only one TMDL is being done. Eutrophication is essentially a measure of phosphorus levels in the water. Turbidity is the degree to which light penetrates the water. Turbidity can be caused by sedimentation, natural causes or algal blooms (from

increased phosphorus levels). Turbidity is also related to flow rates as faster flows increase erosion and sediment loads. Sedimentation, which is 10 times faster than the background rate will fill the Upper Lake in roughly 90 years, is also a major problem. This is the largest TMDL to date, covering half of Minnesota and includes 5 states. Two types of water bodies are involved as well (Lake Pepin acts like a lake during periods of low flow and as a river during higher flows). The Lake Pepin TMDL should be completed in 2009.

A TMDL study is composed of several parts. The study determines the amount of a pollutant that is currently entering and impairing the water. Then, it determines the maximum amount of the pollutant that can be present in the water while restoring water quality. The difference between these two levels is how much pollutant must be removed from the system. A list of what waters contribute how much of the pollutant must also be created. Then, a TMDL indicates how much each waterway will have to reduce their pollutant load. Timelines are created for actions of up to 2 years, up to 5 years and beyond 5 years. More information on TMDLs can be found either through the EPA or the MPCA.

Saint Paul is a densely populated city that contributes runoff directly to the Mississippi River and to Lake Pepin. The amount of runoff generated by an urbanized watershed increases with the amount of urbanization (and increasing impervious surfaces). Saint Paul contributes a small percentage to the turbidity of Lake Pepin, both through direct sedimentation and increasing the flow of the river which in turn increases the likelihood of in-stream erosion. However, urban runoff does contribute phosphorus to Lake Pepin. A Barr engineering study from 2004 estimated that urban runoff along the Mississippi River contributes 7% of the phosphorus to Lake Pepin. According to the watershed districts, Saint Paul contributes similar amounts of phosphorus as other comparably developed watersheds.

Larson estimated that the Lake Pepin TMDL study will conclude that phosphorus levels will need to be reduced by roughly 40%. However, it is likely that the new Watershed District rules will be strict enough to remove more than that amount of phosphorus from Saint Paul's runoff for areas that are retrofitted under these rules. Therefore, it is probable that the City and development can continue business-as-usual while following the watershed district rules. Tracking existing and retrofitted BMPs will be an important activity for Saint Paul and the Watershed Districts. This tracking will allow the city to demonstrate progress toward achieving the needed reductions.

The Lake Pepin TMDL is not the only ongoing TMDL study that will impact Saint Paul. The Mississippi River is impaired for fecal coliform although no TMDL study is currently being done (the state has 15 years from the listing of an impairment to complete a TMDL). Also, Beaver Lake and Como Lake are listed for eutrophication. However, the phosphorus (that leads to eutrophication) in Beaver Lake is primarily attached to sediment, thus if erosion is controlled, so

will eutrophication. Phosphorus can be either sediment-attached or ortho, meaning it is dissolved in the water column. Battle Creek is impaired for chlorides. The Beaver Lake TMDL is in draft form and will be finished soon; however, neither of the other impaired waters have TMDLs in progress.

An important distinction to make is that most likely, only the Mississippi River fecal coliform and the Lake Pepin TMDL will have citywide effects. The other TMDLs will be carried out by the watershed districts operating in the immediate watershed.

The question and answer period:

- The Minnesota River has been targeted by federal and state programs to reduce its pollutant load. The Conservation Reserve Enhancement Program (CREP) has had several phases in which nearly 100,000 acres that were formerly farmed have been permanently set aside. In these areas, direct improvements in water quality were seen; however, this is less than 1% of the watershed. CREP is an ongoing program although it is limited by funding.
- The MPCA can help cities and practitioners the most by studying best management practices (BMPs), quantifying their effects and giving technical assistance. However, BMPs are primarily site-specific and how these will be quantified on a city-scale is unknown. It may be possible to trade stormwater credits in the future because it will be more cost-effective to have stormwater reductions in rural or suburban areas rather than urban areas.
- Seattle, WA, Portland, OR and Vancouver, BC have shown innovation and leadership on urban stormwater issues. These cities are beginning to use stormwater as an asset rather than a problem.
- How are baseline levels for TMDLs determined? For a non-degradation standard, a baseline year is set. The amount of pollutant emitted must be decreased to the level in the baseline year. Otherwise, the assimilative capacity of the water for a particular pollutant is determined and the amount of pollution must be decreased to that level. The assimilative capacity of a waterway is determined by studying the assimilative capacity of similar waters in their natural state. For example, Como Lake is a shallow lake in a hardwood forest setting. The assimilative capacity of phosphorus (the main indicator of eutrophication) in other shallow lakes in hardwood forests is determined and a similar level is set for Como Lake.
- If density is increased in Saint Paul, impervious surfaces in outlying areas will not have to be constructed. Can Saint Paul get credit for this? In the future, trading may be possible within communities although the amounts need to be quantifiable and should be within the same watershed. Trading of wetlands is already well established and may be used as an example.
- The Mississippi River impairment issues are of regional and national importance (for example, the Minnesota River is the major source, in Minnesota, of phosphorus that contributes to the Dead Zone in the Gulf of Mexico).

- Global climate change will likely increase the number of storms and increase the percentage of rain coming at faster rates. Stormwater BMP sizing criteria will need to be adjusted to reflect the impacts of climate change.
3. **Surface water management (SWM) issues** were brought up by Larry Soderholm. The Trillium Plan from 2002 was passed around, showing how some stormwater will be daylighted within Saint Paul. The SWM work group has continued to work and refine its priorities for this plan. These priorities were highlighted by Soderholm and are listed on the handout for this meeting. Bob Fossum noted that stormwater reductions should be made strategically throughout publicly-owned lands. Brian Tourtelotte commented that Saint Paul (and other government agencies) needs to commit to following through on these issues, particularly in staff time.
 4. **Closing** by Lu. Lu ended by stressing that the task force needs to look at the larger issues and not get tangled up in specific practices or BMPs. Lu also mentioned that the Phase II permit of the NPDES program (Saint Paul has a phase I permit) has several meaningful elements that are germane to Saint Paul's situation.

The next meeting of the task force will be on **September 10** at the Pig's Eye/Metro Wastewater Treatment plant. There will **NOT** be a meeting on **September 24**.

The meeting ended at 5:30 pm.